

## REMARKS

Claims 1-8, 12-26 & 29-39 are in the present application. Certain of the claims have been amended, as indicated above, to add to the recitation that a laser beam passes through an objective and through a lens spaced therefrom, to form an object beam, e.g., per claim 1, as amended.

The above Office Action, in ¶6, has objected to the above application as only giving support for using an objective to create an object beam. The Office Action also alleges that the lens 46 of Figure 3 is not an imaging lens but only creates collimated light. However, such interpretations are refuted by one skilled in the art, in a Declaration under 37 CFR 1.132 signed by the Inventor and enclosed herewith.

Thus, as to the first interpretation, one can have a beam that passes through an objective and arrives at the hologram as an object beam, per original claim 1 herein. Or one can have a beam that passes through an objective and then through a spaced lens to arrive at the hologram as an object beam, as described in the specification at page 7, lines 1-9 and as noted in the above Declaration.

The Office action also states that the specification does not explicitly support using both the objective and the lens 46 to create the object beam. However, applicant's objective and spaced lens are clearly disclosed to those skilled in the art, as discussed above and also as shown in applicant's Figures 3 & 4 and described in the specification on pages 6 and 7. That is, the last four lines of page 6 state, with respect to Figure 3, that the objective focuses the light through an imaging lens 46, which images the objective onto a suitable light-sensitive material 40. Then on page 7, lines 2 and 3, referring to Figures 3 and 4, it is stated that the two lenses, 44 & 46 are the basis of a microscope. Thus, we have an original disclosure that supports the amendment, e.g., to present claim 1 a) of an optical system having an objective and an imaging lens. Accordingly, it is believed that this objection is met.

Also, applicant discloses at page 4 of the specification, in lines 7-9, that the image corrector of the invention provides for aberration correction of an optical system, e.g., a microscope.... Thus aberration correction of an optical system of spaced lenses in a microscope, is clearly disclosed to those skilled in the art in the present application,

sufficient to support the claims as amended herein. Accordingly, it is believed that this objection is met.

The Office Action objection to claims 1-8, 21-26 & 29-31, as having insufficient disclosure of the objective and an imaging lens spaced therefrom, so as to render such claims, as to the imaging lens, indefinite, is respectfully traversed. Claim 1, for example, has sufficient structure to describe applicant's optical system to those skilled in the art, especially in view of Figures 3 & 4, which clearly illustrate such lens system to the skilled observer as described above and this objection is believed met.

The Office Action rejection of claims 1, 2, 8, 12, 14, 15-17, 18, 19, 20, 21-26, 29-31, 32-35, 37, 38 and 39, as obvious under 37 USC 103 (a) over USP 3, 580, 655 to Leith et al (1971), herein'655, in view of USP 3,740,147 to Kallet is respectively traversed. Leith does not teach correcting an objective and neither patent suggests holographically correcting a microscope.

However, the Office Action then proposes that since the method of correcting the aberrations of a lens of Leith is not restricted to a particular optical system, that correcting for a microscope lens (in a system of two or more lenses) is implicitly included so as to render applicant's claimed invention an obvious modification of the Leith system.

This appears to be a new type of (and overly broad) obviousness rejection. This would mean that a patent on a general scientific method, "holographic correction of a lens" would rule out later patenting of practical applications of such lens, i.e., of a telescope or a microscope.

Also, the above test (that if a patent recites a general principle and is not restricted to a particular optical system, that it applies to any future practical application), is contrary to the test for obviousness recited in the MPEP, e. g., section 2143. Here, it is recited that to establish a prima facie case of obviousness, three basic criteria must be met.

1. A suggestion or motivation to modify a reference to arrive at the claimed invention,
2. A reasonable expectation of success and
3. The prior art reference must teach or suggest all of the claim limitations.

Such teaching or suggestion must be found in the prior art and not in applicant's disclosure, *In re Vaeck*, 20 USPQ 2<sup>nd</sup> 1438(1991).

Here, applicant's above independent claims, as amended, recite an objective and an imaging lens structure. Such corrected lens combination is not suggested in the prior art. Accordingly, applicant's limited application of a holographically corrected microscope is seen as novel and unobvious over the prior art. Note that we are not discussing a mere recitation as to the manner in which an apparatus is intended to be used but an actual recited and un-suggested structural difference of applicant's above corrected objective in combination with a spaced imaging lens.

That is, the above prior art references do not teach or suggest all the limitations of applicant's above claims. Thus, while the Kallet patent shows standard microscopes, it does not suggest a holographically corrected microscope.

It is clear from the second paragraph on page 4 of the Office Action, that it is a stretch to find a prior art reference for applicant's corrected microscope and while it is asserted that a corrected microscope should be suggested by the prior art, the Examiner is unable to find such a reference unless she borrows from applicant's disclosure, which is only hindsight reconstruction.

That is, as noted above under test 3, in suggesting applicant's claimed holographically corrected microscope of claims 1 et seq., the Examiner must find a prior art reference which teaches or suggests all of applicant's claim limitations and Leith does not teach correcting an objective and neither Leith nor Kallet suggests holographically correcting a microscope; so these two references fail to meet the requirement of test 3 above.

The Office Action alludes to applicant's method claims, by indicating that such claims are disqualified from distinguishing over the prior art, since the designation of "microscope" appears only in the claim preamble, and does not have the effect of limiting such method claims to "microscopes".

However, applicant's method claims such as claims 15, 18, 20, 32, 37 and 39 have been amended to place the microscope designation outside of the preamble, to limit same so that they may now be examined on the merits. That is, applicant's above method claims provide for holographic lens correction in a microscope, which feature has not

been discussed with respect to the prior art and which is believed to lend considerable novelty to applicant's method claims.

The Office Action rejection of applicant's claims 21-26, 29-31 & 32-35, 37, 38 & 39, as obvious under 35 USC 103 a) in view of the above patents to Leith' 655) and to Kallet '147 and further in view of Klotz, '555, is respectfully traversed. Again the Office Action states that if Leith is not restricted to a particular optical system that is intended to be corrected, this suggests to one skilled in the art, that one may include an objective and imaging lens in a microscope. That is, if the patent doesn't negate an application or use, it is covered by such patent.

This non-negate rule, proposed by the Examiner, flies in the face of the Examiner's own MPEP at section 2143, including test 3 for obviousness, which is that the prior art reference must teach or suggests all of the claim limitations, not merely fail to negate such limitations as the Examiner would have it. Accordingly, applicant requests a citation from the Examiner on this radical departure from the accepted rule.

As noted on page 9 of the Office Action, the Leith reference does not teach the use of a pinhole array in the object light path, while the newly cited Klotz reference, '555, does teach the use of a pinhole array to produce multiple-point holograms but does not suggest the use thereof in a microscopes, per applicant's claims 21 et seq. nor to provide a large field of view in a microscope that has holographically corrected lenses, as described above.

Note that all of applicant's above claims are now amended to limit the scope of each to lens correction in a microscope and claims 21 et seq. are further enhanced by reciting an array of pinholes in such corrected microscope.

Thus, it is believed that all of applicant's claims that recite "an array of pinholes" should be seen as allowable, including claim 32, from which claim 36 depends. That is, it is noted that claim 36 is objected to as dependent upon a rejected base claim, but would be allowable if... Hopefully, claim 36 is now dependent upon a novel base claim, as amended and need not be written in independent form. Further such array of pinholes makes possible the method of claim 36, which provides an image with a contour plot thereof.

As discussed above, none of the cited references suggests holographically

correcting a microscope. Thus, none of the cited references teach or suggest all the limitations of applicant's above claims so as to establish obviousness per In re Vaeck, above.

Thus applicant's claims have been amended to recite novel, useful and specific applications over the generalized holographic principles of the prior art.

In view of the foregoing, the claims of record, as amended, are believed distinguished over the applied art and in condition for allowance.

In accordance with Section 714.01 of the M.P.E.P., the following information is presented in the event that a call may be deemed desirable by the Examiner to: Thomas C. Stover, (781) 377-3779.

Respectfully submitted,



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